

Agricultural Water Offset Program

Paso Robles Groundwater Basin

San Luis Obispo County

Final Report



Abstract: The Ag Water Offset Program (Ag Offset Program) provides a framework for processing 1:1 irrigated water offset projects in areas reliant upon groundwater within the Paso Robles Groundwater Basin (PRGWB) and to satisfy County ordinance #3246. The Ag Offset Program incorporates the best existing, local, public data in an attempt to encompass a myriad of application types and potential future water use demands. Additionally, the program design supports the ability to quantify and track new irrigated agriculture within the PRGWB through the use of Geographic Information Systems (GIS) and an existing database reliant upon groundwater well, parcel, and water use information to provide opportunities for evaluation and verification of the program goals over time.

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**Agriculture Water Offset Program
for the
Paso Robles Groundwater Basin**



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In Association with



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Acronyms

AC	Acre
AWOP	Agriculture Water Offset Program
AF	Acre-feet
AFY	Acre-feet per year
CIMIS	California Irrigation Management Information System
DWR	Department of Water Resources
ER	Effective rainfall
ET _c	Crop evapotranspiration
ET _o	Reference evapotranspiration
FAO	Food and Agricultural Organization of the United Nations
FP	Frost Protection
GIS	Geographic Information System
IE	Irrigation Efficiency
LR	Leaching requirement
NOAA	National Oceanic Atmospheric Administration
RCD	Resource Conservation District
PRGWB	Paso Robles Groundwater Basin
Q	Pumping rate
S	Drawdown
SLO	San Luis Obispo
T	Transmissivity
WPA	Water Planning Area
W(u)	Well function

1 INTRODUCTION

1.1 BACKGROUND

Water is a precious resource in nearly any community. On the Central Coast of California, which experiences semi-arid Mediterranean climate, the variability and thus, reliability of water is a matter that seems to polarize communities. To further complicate matters, in San Luis Obispo (SLO) County, the distribution of precipitation decreases from the coast to inland areas as the coastal range of mountains creates a rainshadow effect to inland basins (NOAA 2014). In SLO County, the Upper Salinas River basin is one of the largest basins in the State. It begins at the confluence with the Nacimiento River near Bradley and extends several miles southeast of Santa Margarita. The Upper Salinas Basin is mostly unregulated, except for a large dam, the Salinas Dam, forming Santa Margarita Reservoir. The Salinas Dam, built in 1941 by the U.S. Army Corps of Engineers, provides flood risk management and a source of water supply to the City of SLO (City of San Luis Obispo 2014). Downstream of the Salinas Dam, groundwater is the primary source of water supply to the inhabitants in the outlying rural areas of northern San Luis Obispo County and the unincorporated towns of Santa Margarita, Templeton, San Miguel, Creston and Shandon in addition to providing municipal supplies for the cities of Atascadero and Paso Robles. It is also a major source of supply for irrigated agriculture throughout the region. The Upper Salinas Groundwater Basin is fed not only by the Salinas River but underlies areas supported by infiltration from numerous tributary rivers and streams such as the Estrella and San Juan Rivers.

Multiple municipalities and a wide range of landowners extract groundwater from the Upper Salinas Basin for beneficial uses such as drinking water, recreation, and agricultural production. The Paso Robles Groundwater Basin (PRGWB) is one of several identified distinct sub-basins within the Upper Salinas River Basin and encompasses an area of approximately 505,000 acres. The PRGWB extends from San Ardo in Monterey County to the Garden Farms areas south of Atascadero, and from the Highway 101 corridor east to Shandon. The PRGWB includes the Atascadero sub-basin which has not shown the same significant levels of decline in recent years. The Atascadero sub-basin is bordered by unique geologic features that create a defined separation from the majority of the main basin. In addition, this sub-basin is largely managed and controlled by the Atascadero Mutual Water Company and the Templeton Community Services District. Based on these factors, the Atascadero sub-basin is considered a unique and separate entity. When referring to the PRGWB throughout this document, it is assumed not to include the Atascadero sub-basin unless otherwise stated.

1.2 PURPOSE AND AUTHORITY

According to multiple studies of the PRGWB, annual basin pumping is now at or near the basin's perennial yield (Paso Robles Groundwater Management Plan, 2011). However, from 1997–2009, San Luis Obispo County (County) monitoring results showed that water levels declined an average of 2–6 feet per year, depending on the location. A 2007 pumping analysis completed by Todd Engineering¹ indicated that the PRGWB was not approaching the safe perennial yield level but acknowledged that some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009

¹ Paso Robles Groundwater Basin Pumping Report. 2007. Todd Engineering.

suggested groundwater pumping was approaching the safe perennial yield level of the PRGWB². The 2010 Resource Capacity Study prepared by the SLO County Planning Department stated that the PRGWB is now near or at perennial yield levels. In October 2012 the SLO County Board of Supervisors (Board of Supervisors) certified a Level of Severity III for the PRGWB (excepting out the Atascadero Sub-basin) due to declining water levels. In August 2013, the Board of Supervisors adopted an urgency ordinance (Ord. 3246) to limit new groundwater pumping from the PRGWB. As stated in the urgency ordinance, rural and agricultural land owners must have an approved “offset” (1:1 replacement water) in order to pump additional groundwater. According to the PRGWB Blue Ribbon Committee, “The PRGWB supplies water for 29% of SLO County’s population and an estimated 40% of the agricultural production of the County³”. The adoption of Urgency Ordinance 3246 effectively established a “moratorium on new or expanded irrigated crop production, conversion of dry farm or grazing land to new or expanded irrigated crop production and new development dependent upon a well in the PRGWB unless such uses offset their total projected water use²”.

In order to comply with the provisions of the urgency ordinance, the Board of Supervisors initiated the development of a water offset program that would provide a framework for new development of rural residential and agricultural properties under the premise that new water demands would be offset using water savings to limit increased drawdown of the stressed basin. The County contracted with the Upper Salinas-Las Tablas Resource Conservation District to provide a program framework for new and expanded irrigated agricultural uses that overlie the basin and for non-exempt rural residential irrigated landscaping. Non-exempt uses encompass non-commercial rural groundwater uses, including hobby agriculture, that are not included in the County’s rural domestic offset program (maximum permitted irrigated landscape area of 1,000 square feet landscape of immediate exterior, assuming 10% turf, and using a total of 170 gallons per dwelling unit per day of irrigation water).

2 OFFSET PROGRAM DEVELOPMENT

2.1 PROCESS

The Upper Salinas-Las Tablas Resource Conservation District (RCD) collaborated with experts in fields such as hydrogeology, hydrologic and agricultural engineering, and Geographic Information Systems (GIS) to evaluate historic water use within the basin and to develop a framework to offset new applications for agricultural and rural residential water use. Additionally, representatives from the University of California Cooperative Extension (UCCE), County Planning Department, Natural Resource Conservation Service (NRCS), and members of the regional agricultural community served an advisory role and provided additional technical expertise. The goal of the project team was to develop a framework for new agricultural and rural water users to balance, or offset, future water demands with water savings (credits).

The following section outlines the steps taken to develop the Agricultural Water Offset Program (Ag Offset Program). Supporting documentation for technical sections inclusive of tables and calculations can be found in the appendices.

² Evaluation of Paso Robles Groundwater Basin Pumping Update. 2009. Todd Engineering.

³ Paso Basin Blue Ribbon Committee (2013). Retrieved from <http://prwaterbasin.wordpress.com/about-the-basin/>.

2.2 DATA SOURCES AND TECHNICAL REVIEW

The RCD's project team reviewed existing published data and determined that the crop water use requirements published in the County's Master Water Report (MWR)⁴ provided the most localized basis for use in the Ag Offset Program. Within the MWR, crops are categorized into seven (7) main categories which include alfalfa, pasture, citrus, nursery, deciduous, vegetables, and vineyards. The RCD further developed crop water use amounts outside of this publication to account for unique local crop types and water use variables. A small grains category and strawberry category were added to the crop applied water amount tables allowing for greater accuracy of the program within the North County region. The numbers were developed using the same methodology as the MWR to provide consistency throughout the program (See Appendix A for expanded analysis). In addition, values for the pasture and deciduous categories were modified due to a discrepancy found between the calculated crop water use value and the published number in the MWR table. The updated table consisting of added and revised values is integrated into the Ag Offset Program language and will provide the data source for all applications. A more detailed discussion of the crop applied water amounts and MWR methodology is included in Appendix A.

2.3 RESEARCH OF LIKE PROGRAMS

To develop this program, the RCD looked to similar programs to determine the best structure and implementation process. A majority of existing programs are modeled on a water banking methodology that establishes a commerce based system for selling and buying water credits. This strategy was determined to be infeasible based on current County well metering infrastructure and lack of a formal water management district to administer the monetary transactions between landowners. While a formal water banking program was determined to be beyond the scope of this project, information related to aspects of these programs provided a base framework for our local Ag Offset Program.

2.4 PEER REVIEW

Portions of the program related to approval criteria, specifically the Proximity Analysis and Neighboring Well Impact Analysis, were solely developed by the RCD's project team. Since detailed data regarding the specific subsurface geological characteristics of the basin are unknown and naturally change over time, the RCD's technical team included a set of assumptions based on best available data and professional judgment. In addition, specific variables needed to be constrained in order to create a feasible program that could be defined and measured. This portion of the program was distributed to local technical experts in the field of hydrogeology and agronomy to ensure that the assumptions and methods related to the developed approval criteria were sound and appropriate. Greater information related to this topic and the methods developed are included in Appendices C & D.

2.5 STAKEHOLDER MEETINGS

After the draft program framework was established, the RCD met with numerous stakeholder groups and agricultural landowners to solicit input on the program direction and methods. A partial list of such groups includes the Paso Robles Wine Country Alliance, Creston Advisory Body, The Farm Bureau's Ag Liaison Committee, Olive Growers Association, and Pro Water Equity. Other more individualized outreach sessions were also conducted and modeled as case studies. In all, roughly 97 members of the

4 Carollo Associates, San Luis Obispo County Master Water Report, May, 2012, Chapter 4

agricultural community participated in these collective presentation sessions. Input from these stakeholder sessions was brought back to the project team for discussion and inclusion into the program as applicable.

2.6 PUBLIC OUTREACH

Once stakeholder input was received and a draft program was established, two public forums were held which were open to community members at large. Meetings were held at the City Library in San Luis Obispo in tandem with the Water Resources Advisory Committee (WRAC) in September, 2014, and at the Templeton Community Center with the Paso Robles Groundwater Basin Advisory Committee. Over 80 community members were present, not including committee members. In addition to specific program focused meetings, a public update was given to the SLO County Board of Supervisors on July 8, 2014. Comments were received and applicable amendments to the draft program were included. A final public forum is scheduled for Thursday, October 9, at Paso Robles City Hall, 6 – 9pm. This final session will present both the draft urban and agricultural Offset Programs to more of a rural residential and urban audience. Formal comments and questions are recorded in Appendix G for public review in this document.

3 PROGRAM ANALYSIS AND OPTIONS

3.1 DISCUSSION OF PROGRAM ELEMENTS AND OPTIONS

3.1.1 Increased Density and Other Land Management Changes that may Increase Water Use

In relation to vineyard properties, typical management practices call for replacing vines every 20-30 years. This usually leads to alterations in row spacing and/or changes to rootstock based on changing climactic conditions and/or vineyard technologies and management practices. We see an increasing number of vineyards implementing modified planting methods based on new information and research which aims to increase quality, yields, disease resistance, drought tolerance, and/or a variety of factors compelling to the industry.

The program, as proposed, recognizes the desire of the County to analyze and regulate modifications to crop plantings as having the potential to increase water use and a section of the proposed program has been created to address this concern (section 3.4). However, based on significant research and technical input, the methodology for determining offset credits and uses establishes a maximum acreage regardless of crop spacing or management practices. This methodology was created based on best available data and the applied water use requirement values published in the Master Water Report take into account a wide variety of agricultural practices and business strategies. It is widely believed that the numbers in the MWR and which are included as the basis for this program are generous in their water allotments and many users will fall below this water use number.

The benefits of including density increases and modifications to other land management practices that may affect water use in the Ag Offset Program include tracking of impacts to water use based on these changes, installation of flow meters adding to the potential real data available for analysis of basin management strategies in the future, and increased data collection as a whole that can be used to inform land managers and agriculturalists of regionally specific BMP's.

While increased tracking of water use is vital to establishing successful management of the basin as we move forward, there are some drawbacks to the inclusion of this section of the program that the County should be aware of, especially as it relates to vineyards since replanting and changes to

irrigation systems are a regular part of their ongoing operation. Inclusion of these modifications in the Ag Offset Program may create an undue burden on landowners and/or land managers. Landowners not willing to install flow meters and enter into agreements to verify water use annually would not be able to make changes to their land management strategies and/or implement new technologies that could inform future management and irrigation techniques if proved successful. In addition, tracking and processing of such applications will create an increased workload on County staff.

The County has a number of options related to the inclusion of density and/or other modifications to existing irrigated Ag land.

- a. Adopt the program as proposed requiring deed covenants, installation of flow meters, and annual verification for changes to land/crop management practices; or
- b. Reduce the program standards for these scenarios and allow for changes to land/crop management practices on existing irrigated land with only County notification required; or
- c. Eliminate a portion of the requirements (deed covenants or flow meter installation with annual tracking) leaving only one of these requirements in place, or
- d. Adopt the program as proposed with exemptions from the requirements if the property is an approved data collection site for research agents of the County (i.e. UCCE, Cal Poly ITRC, etc), or
- e. Exempt these activities from the program entirely.

It should be noted that exempting these elements from the program in their entirety may conflict with the directive of the urgency ordinance and legal opinion should be given regarding the feasibility of such.

3.1.2 Model Update Affect on Program

The Model Update was released just prior to the submission of the Ag Offset Program for consideration by the County. The Model Update includes revised consumptive water values for crop types throughout the region. The methodologies used on the Model Update differ from the methodologies used in the Master Water Report and therefore analysis of these updated figures will require some time to fully understand the applicability and affect on the values for use in this program. Further, RCD technicians utilized methods outlined in the MWR to develop additional applied water values for unique crops grown within the North County region (strawberries and small grains). These values would need to be updated using the new methodologies outlined in the Model Update to provide a consistent application of the standards. As the release of the Model Update did not provide enough time for a thorough analysis of the updated methodologies and figures, it is recommended that the proposed program be adopted using the MWR values for applied water for adoption of the program in October and that analysis of the Model Update values be completed in the coming months with amendments proposed as necessary to incorporate the most current, accurate information into the program.

3.2 IMPLEMENTATION REQUIREMENTS

The implementation of this program will require a number of additions and changes to County processes and staffing. The below list highlights the more significant implementation needs of the project:

3.2.1 Offset Clearance Tracking System

This program proposes on-going tracking and monitoring of properties participating in the Ag Offset Program in addition to tracking and analyzing properties linked through the landowner-to-landowner

credit transfer process. Tracking these property location variables, water allotments, maximum approved acreage values, crop patterning, and annual compliance status will require a robust tracking system. In addition, it will be beneficial for such a system to allow for statistical report generation so that the success of the program can be tracked numerically and graphically over time. The RCD recommends that current tracking process be analyzed for applicability to this program and that additional tracking methods be sought should the current system not provide adequate data storage and integrity.

3.2.2 County Staff Training for Review of Applications for Consistency with Program Requirements

While every effort has been made to design a program that minimizes the need for highly technical specialists to provide information related to the program requirements, applications will need to be reviewed for accuracy and appropriateness. Some staff training will need to occur to ensure that program standards are adhered to and that standards are being applied in an appropriate manner. Staff training may include:

- a. Standard land management options for crop replanting as it relates to crop patterns and irrigation techniques
- b. Basic understanding of appropriate irrigation scheduling and well pump options
- c. Use of tables 1 and 2 to calculate water allotments and maximum allowable acreage
- d. Review of neighboring well impact analyses
- e. Review of location parameters and calculations

3.2.3 Technical Review Staff/ Consulting Technicians

Some parameters of the program require that additional technical information be submitted as part of the application process. In cases that require higher level technical input, the County will need to contract with specialists in hydrology, hydrogeology, or agricultural engineering to provide per review of the documentation submitted. The program was designed to place a majority of these circumstances under the “Special Considerations” sections which would allow the County to collect additional application fees for these case by case requests. It is recommended that the County hire technical experts for a peer review of applicant submitted information rather than providing that service for a fee contracted through the County as the outcomes of application parameters and eligibility will be affected by the analysis. This will remove the County from direct effects on application status.

3.3 ESTABLISHMENT OF STANDARD EVALUATION METHODS:

This program relies heavily on published data and future published data related to basin water use statistics including mapping of the areas of severe decline. It is important to use established standards for monitoring and evaluation based on data from published research. This alleviates discussions to refute methods and evaluation of information used to make management decisions because the information is based on the best known scientific information available. In addition, it provides a consistent source and methodology for data procurement and analysis infusing the program with stability as it moves forward into the future. Furthermore, when a program may need to be expanded to include other geographical areas, variables, parameters, or matrices - using standardized methods for monitoring and evaluation ensures the implementation of programs are efficient and effective. In addition to establishing standardized data collection methods, having standardized reporting methods allows members of the community, resource specialists, and agriculturists to come to similar conclusions based on the results.

As the Offset Program evolves, development of a standardized monitoring method will allow managers to evaluate the program, make sound recommendations based on community input, and allow incorporation of new data and information. Without having standard methods, any party, including County staff, applicant, or a third party verifier, will be unable track, monitor, or evaluate the program for achieving a 1:1 offset or basin health.

3.4 PROGRAM REFINEMENT & BASIS FOR FUTURE UPDATES:

Obtaining and assessing real data as this Ag Offset Program evolves will be integral to the success of the program and those who interface with it. Balancing water resource needs, basin health, sustaining agriculture, and population health will depend on program modifications over time that responds to emerging data and climactic shifts. The inception of the Ag Offset Program has been developed with scientifically derived, yet assumptive applied water demand data. Real applied water demand data could not be used due to a lack of available published data specific to the micro climates of the region. As real crop applied water data is shared and evaluated as part of this program, it will give agriculturalists and County staff the necessary insights with which to collaboratively amend program components.

As such, it will be of vital importance for the County to implement this program collaboratively with the agricultural community, allowing for an open and responsive feedback loop. This program was uniquely created for the North County region overlying the PRGWB and, to the best of our knowledge, does not exist in other communities. Therefore, many components are untested in real life scenarios and refinement of the program may need to occur after experience has been gained. It is recommended that the County employ the following strategies to aid in this process:

- a. Development of a formal feedback loop for managing standard offset projects to ascertain program workability and success including tracking of denied applications for analysis of the appropriateness of program standards and requirements.
- b. Encouragement of well monitoring sites at crediting locations where wells will be inoperative to expand the County's data sources.
- c. Institution of a publicly available natural resource [water] recovery tracking program.

3.4.1 Enhanced Data Collection and Modeling

Identify farmers willing to participate in case study scenarios where quantifiable monitoring data can be published to refine the program with. This is especially sought with farms using modernized irrigation efficiency technology. Other data to further enhance our understanding of Ag Water needs may include:

- a. Placement of additional CIMIS stations that can be strategically located throughout the PRGWB to refine the reference evapotranspiration (ET_o). The reliance upon one CIMIS station within the large PRGWB containing diverse microclimates reduces the robustness of the program.
- b. Encourage metering of all water uses (not just those in the program) by working with landowners to demonstrate its value and provide funding assistance.

3.4.2 Adoption of Localized Arid Climate Conservation Technologies

Many local farming practices can be amended to incorporate better management strategies that support the drier Mediterranean style climactic conditions we must exist within.

- a. Implementation of soil moisture and irrigation efficiency technology.
- b. Incorporation of more efficient well pumping technology.
- c. Pumping of well(s) at appropriate times of the day, month, year – when water supplies are in less demand.
- d. Consideration of water efficiency when developing cropland and locating crops appropriately (i.e. avoid frost zones for grapes, avoid high wind areas for crops requiring overhead irrigation like Alfalfa, avoid planting high water use crops like Alfalfa altogether).
- e. Incorporation of water alternative technology for frost protection on existing crops (e.g. wind machine technology).

3.4.3 Conservation Funding Incentives

Create a fund for essential water conservation improvement projects. The County could take a leading role in this by setting aside funds derived through the Ag Offset Program via violation fines. Such funds would be returned to that basin's community for application of responsible water conservation projects. A funding program like this could quicken the recovery process while simultaneously reducing community disdain for the fine-based corrective enforcement method used in the Ag Offset Program.

3.5 LEGAL CONSIDERATIONS

3.5.1 Limitations on Overliers Rights

The adoption of the Urgency Ordinance in August 2013 recognized the limitations of the Paso Robles Groundwater Basin to respond to the growing water needs of properties and municipalities who draw water from the basin for domestic and agricultural water uses. The adoption of the urgency ordinance placed an effective moratorium on the establishment of certain new uses which would have otherwise been allowed per County Code. This moratorium extended to the establishment of new irrigated agriculture. The proposed program seeks to respond to this moratorium by establishing a policy and regulatory framework for new irrigated agriculture to be established based on defined water use parameters.

As this program will establish land use regulations that may result in the denial of a landowner overlying the PRGWB to draw water for new agricultural production, a thorough legal review of the interactions between land use regulatory authority and water rights for overlying landowners is recommended should an extension of this program beyond the term of the Urgency Ordinance be considered. Overarching legal questions related to the enactment of land use regulations affecting water resources were not researched as part of the creation of this program.

3.5.2 Protection for Neighboring Properties

The proposed program includes a requirement for all applicants to assess the potential impact to neighboring wells due to the proposed new well use for irrigation purposes. This provision was included in recognition that existing uses may be negatively impacted by new agricultural development within close proximity. The program aims to ensure that the establishment of new irrigated agriculture will not result in drastic declines to water levels at neighboring well sites. However, physical characteristics of the basin are not extensively known and assumptions are made to allow application to be processed using the best available data. Because basin specifics are not known, and because basin health and vigor is largely related to changing climactic conditions, the

neighboring well impact analysis provision of the program is not intended to guarantee continued neighboring well levels and operation. The County should seek legal advice related to the inclusion of this program element prior to adoption.

4 FUTURE PROGRAM DEVELOPMENT: PHASE 5 OUTLINE

Phase 5 of the Ag Water Offset program will be developed and completed in October, 2014. It will include tools needed to implement the program post adoption, including but not limited to:

- a. Offset Distance and Drawdown Calculator (where housed, etc)
- b. Application & Reporting Template
- c. Sample Deed Covenant Language
- d. Outline of 3rd Party Program Verification Process
 - Options for verification procedure (county contractor vs. independent contractor)
 - Potential Eligible Contractors
 - Process for the collection of annual fees
- e. Sample Offset Clearance Form

ATTACHMENT A. AGRICULTURAL WATER OFFSET PROGRAM FOR THE PRGWB

See Attached

ATTACHMENT B. OUTLINE OF STAFF PROCEDURES FOR APPLICATION PROCESSING

Step 1: Application Intake

- 1 Review of application to ensure that all necessary documentation is submitted. See program sections 2-5 for guidance based on application/category type.
- 2 Set up application in tracking program

Step 2: Review of Base Information

It should be assumed that this step will require at least 2 submittals for review as corrections/comments in addition to review of neighborhood letters as discussed in step 3 may occur after initial submittal and review. Applications requiring peer review will be referred to a consultant for review and determination of eligibility (see Step 4).

1. Determine Category of application
2. Review basic qualifying criteria to determine eligibility
 - a. Operational Modifications
 - b. Category I
 - Verify Crop installation within prescribed pre-urgency ordinance period
 - Verify Maximum net acreage calculations
 - Verify proposed crop type and acreage
 - c. Category II
 - Verify Crop installation within prescribed pre-urgency ordinance period
 - Verify Maximum net acreage calculations
 - Verify proposed crop type and acreage
 - Verify Hydrogeological Strata Analysis Data
 - Compare well depths for crediting and receiving site(s)
 - d. Category III
 - Verify Crop installation within prescribed pre-urgency ordinance period
 - Verify Maximum net acreage calculations
 - Verify proposed crop type and acreage
 - Verify Hydrogeological Strata Analysis Data
 - Compare well depths for crediting and receiving site(s)
 - Review landowner agreements to ensure that both landowners agree to the provisions of the program and that water allowances are within those requested by the applicant
 - e. Category IV
 - Verify Crop installation within prescribed pre-urgency ordinance period
 - Verify Maximum net acreage calculations

- Verify proposed crop type and acreage
- Verify Hydrogeological Strata Analysis Data
 - Compare well depths for crediting and receiving site(s)
- Review landowner agreements to ensure that both landowners agree to the provisions of the program and that water allowances are within those requested by the applicant
- Verify Proximity calculation and determine if benefiting and receiving sites are within the prescribed distance

Step 3: Neighboring Well Impact Analysis (Category II through IV)

1. Notify the applicant that letters to neighboring well owners are to be sent out. The Applicant must use the County's approved form letter and the responses must be copied to the County staff planner for verification.
 - Optionally, the County can administer this process to ensure consistency
2. Collect any neighboring well data received.

Step 4: Determine if Peer Review is Required

1. If neighborhood well data requests are returned
2. If a Special Consideration is requested

If a peer review is required, additional application fees will be required before the application can proceed.

Step 5: Preparation of Recorded Documents

1. Deed Covenants
 - a. Modify template to include the following application specific information:
 - Approved Total Maximum Water Allotment
 - Approved Maximum Acreage
 - Approved Crop Type(s) with acreages for each listed if more than one crop type is approved
 - Identification of properties participating in the Offset Clearance (crediting and/or receiving sites)

Step 6: Issuance of Offset Clearance

1. Modify Clearance template to include application specific information
2. Mark application as approved in tracking program noting the following
 - a. Approved acreage and crop type
 - b. Maximum approved water allotment
 - c. Expiration date of clearance

Step 7: Annual Verification/Offset Clearance Renewal

It is recommended that the County receive advance payment of 3 annual site verification visits (i.e. bundled into application fee) to cover futuristic verification expenses.

1. Option 1 – County Agent

- Renewal application submitted with application fee
- County agent will go out to verify water use and review approval criteria
- Form submitted by agent to County for renewal
- Renewal recorded and issued

Note that if the RCD becomes the County's agent for the purposes of annual verification, the RCD will work collaboratively with the landowner increasing awareness and potentially resulting in reduced costs for this service.

2. Option 2 – Independent Contractor with County Agent Review or County Agent as verifier

- Renewal application submitted with application fee
- Annual verification form submitted to County
 - Must be verified by County Agent prior to submittal if not completed by County Agent
- Renewal recorded and issued

Note that if the landowner/manager is able to contract with a verifier of his/her choosing, the RCD will also offer this service as an option. Costs would likely be lesser if the RCD is hired for this service but landowners/managers would retain the option of hiring a different verifier should they so desire.

ATTACHMENT C. PROGRAM INTERFACE EXAMPLES

Example 1 – Crop Conversion on Same Property, Same Well

Farmer A wishes to take 100 acres of alfalfa on ground he owns in the Estrella area and convert the ground to vineyard. They then wishes to grow more grapes on adjacent lands he owns that have not been previously irrigated. They will be using the same well for both areas. How many additional acres of vineyard can he plant?

Answer:

This is a Category 1 Offset application. The average crop water requirement for alfalfa is 4.5 acre-feet per acre and the average crop water requirement for vineyard is 1.7 acre-feet per acre (see Table 2).

Step 1) Determine total amount of water available per year

Review of aerial photos and other documentation shows that the 100 acres of alfalfa was irrigated in at least 1 out of the last 5 years

$4.5 \text{ AF/Acre} \times 100 \text{ acres} = 450 \text{ AF/yr}$ total water available

Step 2) Determine how many acres of vineyard can be developed with an average water requirement of 1.7 AF/Acre

$450 \text{ AF} / 1.7 \text{ AF} = 264.7$ total acres of vineyard

Farmer A will be allowed to grow grapes on his original 100 acres plus an additional 164.7 acres using 1.7 acre-feet per acre per year of water. No proximity criteria apply because he is using the same well and will be applying the water to contiguous land that he owns. A meter would be required to be installed on the well.

Example 2 – Crop Conversion on Contiguous Property, Same Landowner, Different Well

Farmer B wishes to take 100 acres of alfalfa on ground he owns in the Estrella area and convert the ground to vineyard. He then wishes to grow more grapes on contiguous ground he owns that has not been previously irrigated. He will be using a different well for both areas. The new well serving the new use is located 3000 feet from a domestic well and 1000 feet from an irrigation well. Farmer B plans to increase the instantaneous pumping rate at the well serving the new use from 800 gpm to 1200 gpm for 8 hours per day max use. How many additional acres of vineyard can he plant?

Answer:

This is a Category 2 Offset application because it is contiguous property owned by the same landowner and a second well will be used. The average crop water requirement for alfalfa is 4.5 acre-feet per acre and the average crop water requirement for vineyard is 1.7 acre-feet per acre (see Table 13).

Step 1) Determine total amount of water available per year

Review of aerial photos and other documentation shows that the 100 acres of alfalfa was irrigated in at least 1 out of the last 5 years

$4.5 \text{ AF/Acre} \times 100 \text{ acres} = 450 \text{ AF/yr}$ total water available

Step 2) Determine how many acres of vineyard can be developed with an average water requirement of 2.1 AF/Acre

$450\text{AF}/1.7\text{AF} = 264.7$ total acres of vineyard

Step 3) Determine the impact on the nearest domestic and irrigation well using the drawdown calculator:

Consider the instantaneous flow rate at the new well will be increased from 800gpm to 1200gpm – net increase of 400 gpm for 8 hours per day

Domestic well at 3000 feet: Drawdown = 9.8 feet 15' Criteria met: yes/no

Irrigation well at 1000 feet: Drawdown = 17.1 feet 30' Criteria met: yes/no

Farmer B will be allowed to grow grapes on his original 100 acres plus an additional 164.7 acres using 1.7 acre-feet per acre per year of water. If the properties are two legal parcels of record, deed covenants will be required to be recorded for each parcel. Meters would be required to be installed on the well serving the new use and the well that is the source of the offset credit. Proximity criteria for impacts on neighboring wells have been met.

****Note** that drawdown impact criteria (15 feet) at a domestic well would not be met if the pumping duration was 12 hours, rather than 8 hours. Offset Distance criteria does not apply because the offset credit is derived from contiguous property.

Example 3 – Crop Conversion on Contiguous Property, Different Landowner, Different Well

This example is identical to #2 except that the adjacent contiguous land is owned by a different landowner. Assuming all assumptions remain the same, Farmer C would be granted an offset clearance for 164.7 acres and would be required to record a deed covenant his land and the neighbors land. Meters would be required to be installed on the well serving the new use and the well that is the source of the offset credit.

ATTACHMENT D. REVIEW OF PUBLIC COMMENTS

Multiple stakeholder and public forums were held to disseminate information about the Ag Offset Program. Commonly asked questions and answers are captured here for review.

Comments & Questions Received	Answers
Due to the severity of the basin, why doesn't the Ag Offset Program require a 2:1 or 3:1 water offset?	The Ag Water Offset Program was created in response to the urgency ordinance, which requires a 1:1 offset. Therefore, the program is required to establish parameters for a 1:1 offset credit. The program has no authority to change the requirements of County ordinance(s).
What enforcement actions will be taken if a landowner does not comply with the Ag Offset Program and honor the credit they are allotted?	One or more of the following will apply: <ol style="list-style-type: none"> 1. A landowner will be monitored to come into compliance within a very strict timeline. 2. An administrative fine will be administered (and published).
Does the program protect neighboring wells from developing farms?	The intent of the program's proximity analysis is to avoid significant impacts wherever possible but it does not claim to "protect" neighboring wells.
If a deed restriction is placed against my property once I enter the program, will it remain active indefinitely?	The program requires that deed restrictions be transacted/recorded between crediting and receiving landowners. Language will also be inserted that states that the program will cease to exist once the basin has reached a severity rating of 1. After such a time, the restrictions on the deed shall also cease.
The program is supposed to give a framework for 1:1 offsets. Why does it additionally disallow moving a credit from a non-severe area of the basin to a severe area when that has no relation to a 1:1 water offset?	The Ag Offset Program is designed to create a framework for 1:1 water offset transactions, and it tries to encompass programmatic elements that will further reduce significant impacts to the overall basin and its overlies.
How will the Ag Offset Program/credits affect landowners who are under Williamson Act contracts?	Participation in the Ag Offset Program is voluntary and some landowners with restrictions such as these may not be able to participate in the program. It can only be used if consistent with Williamson Act and County rules of procedure.
If a farmer rotates crops regularly, will they have to enter into the Ag Offset Program?	No. If the farmer has traditionally used the same crops on a rotational basis, there is no need to enter into the Ag Offset Program. If crop activity is questioned as being divergent from past crop

	activity – the farmer will be required to illustrate which crops have been most recently rotated/farmed on that site (e.g. Use of seed purchases, crop sales receipts, aerial photography, etc.). Crops must have been farmed/rotated since 2008.
In order to make the County's well monitoring program more accurate, is there a way to put fallowed wells for offsets into the County's well monitoring program. These well readings would be more accurately reflective of actual basin levels because they are not pumped.	Well destruction is the currently recognized method for decommissioning wells in SLO County, however, we think this is a very beneficial use for wells decommissioned thru the Ag Offset Program and are in the process of trying to establish a framework for a monitoring protocol to occur and if it is possible.
How will transactions between two individuals (crediting and receiving sites) be monitored?	The program requires that deed restrictions be transacted between crediting and receiving landowners. That language will be in perpetuity or until the basin reaches a level of severity 1 rating, or whichever comes sooner. This deed will serve as the landowner to landowner tracking, which will be passed along with the land parcel.
Does this program bank water?	No. The Ag Water Offset Program is a framework for processing 1:1 water offset credits but does not track and bank water reserves.
An average water duty of 1.7 AF/AC/YR seems too high for an average vineyard to need. Can a vineyard opt to use the low water requirement of 1.25 instead?	Water duties were established through the Master Water Report and Paso Basin Model Update using localized data over a large time span and over various regions within the basin (areas with varying precipitation rates). The water requirement that will be assigned through the Ag Offset Program must suffice growers in varying parts of the basin and through varying years of dryness/drought. Therefore, standard clearance applications will use the average water duty of 1.7. It is also beneficial to add that the program will serve as a tracking mechanism for real data over time (e.g. flow meters) that may reveal that a modification to that water requirement number be made over time.
If a farmer implements irrigation efficiency measures, would they become eligible for a larger credit?	Irrigation efficiency technology does not glean greater credits at this time but it will garner the farmer greater water use flexibility and contribute to overall basin level recovery. It is highly

	<p>recommended.</p> <p>The inverse is also true. Growers with operational inefficiencies who claim their water use is quite high (to establish their water exchange credit rate) will NOT be given a higher water credit. They will be granted the average water duty in the program tables for their crop(s).</p>
Will the County's new Paso Basin Model (update) and data be used in the Ag Offset Program?	<p>Yes. However, the Ag Offset Program Framework was due to the County at the same time that the model update was completed (Oct 1, 2014). Therefore, it is recommended that the data will be reconciled by County staff.</p>
Were interim projects overseen by the County between the dates of August 27, 2013, and October 1, 2014, subject to standards of the Ag Offset Program?	<p>No. County staff processed those applications and projects under a different set of standards since the program was not yet in place.</p>
This program sets proximity limits to locating new wells but some wells seem inadequate for the basin today. Is that fair?	<p>The Ag Offset Program does not have the authority to establish the parameters of what might be considered adequate or inadequate wells variously located within the Paso basin.</p>
If a well located within municipal water boundary(s) is too close in proximity to my property/well, based on the standards of the Ag Water Offset Program, will they be subject to the same standards as the Program for negatively impacting my well?	<p>No. The Ag Offset Program is designed as a management tool to direct projects in relation to the Urgency Ordinance. It does not include wells or properties outside of the ordinance boundaries or in any area already covered by a municipal water agency or source.</p>
Who is responsible for providing neighboring well data for proximity analysis?	<p>The owner of the neighboring well will have a set timeframe to provide site specific data about their well, or an alternative calculation methodology will be used.</p>
Is it possible to have varied levels of Basin subarea management to match the level of severity in those subareas and according to severity map?	<p>Not at this time. The ordinance applies uniformly to the entire Paso Basin (excluding the Atascadero Sub-Basin) without exception.</p>
This program seems to strongly limit overlie rights to water and rights to subdivide property which may place an economic strain on the landowner.	<p>The County's Urgency Ordinance is the authoritative document on Basin limitations. The Urgency ordinance places a flat moratorium on all development requiring more water. The Ag Offset program sets up framework that allows for continued agricultural development.</p>
This program will require water metering. It's nobody's business how much water I am pumping.	<p>The Ag Offset program is voluntary. Unless you plan to increase your water use, you do not need to go into the program and be metered.</p>

Many plans and collaborative actions have taken place in the Paso Basin (i.e. Paso Robles Basin Management Plan, Paso Robles Groundwater Advisory Committee Solutions, Paso Basin Water District, etc). Has the Ag Offset Program considered this data?	Yes. The Ag Offset Program relied heavily upon existing published data from the beginning due to its aggressive completion date and limited budget. The most broadly used existing public data for the program was the Master Water Report for San Luis Obispo County, which considered data from many of those sources before being published in 2012.
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ATTACHMENT E. SAMPLE NEIGHBORING WELL LANDOWNER LETTER

Date:

Dear Property Owner or Resident

An application has been received to establish a _____ acre _____ adjacent or near to your property. This application is being reviewed by the County under the provisions of the Agricultural Offset Ordinance which requires that impacts to neighboring wells within the area. Your property is within this identified area.

In order to provide the most accurate analysis of potential impacts to your well(s), the County is requesting the below information. Providing this information is voluntary but will assist in a more accurate analysis of potential water reduction levels at the site of your existing water well(s). If you cannot, or do not wish to, provide the requested information, an analysis will be completed based on more generalized information. If you are available to provide more detailed well data in addition to the information requested below, please check the “contact me for additional information” box at the bottom of this form and provide your contact information. Any information you wish to share for the purposed of analyzing the submitted application must be sent to the County of San Luis Obispo (Insert address for applicable department here) in addition to the applicant.

Please note that new irrigated agricultural uses will be permitted to utilize wells for irrigation and frost protection and that the Agricultural Offset Program does not guarantee maintenance of existing well levels or productivity. The program is aimed at maintaining current water use levels throughout the area overlying the Paso Robles Basin and does not provide absolute protections for neighboring wells.

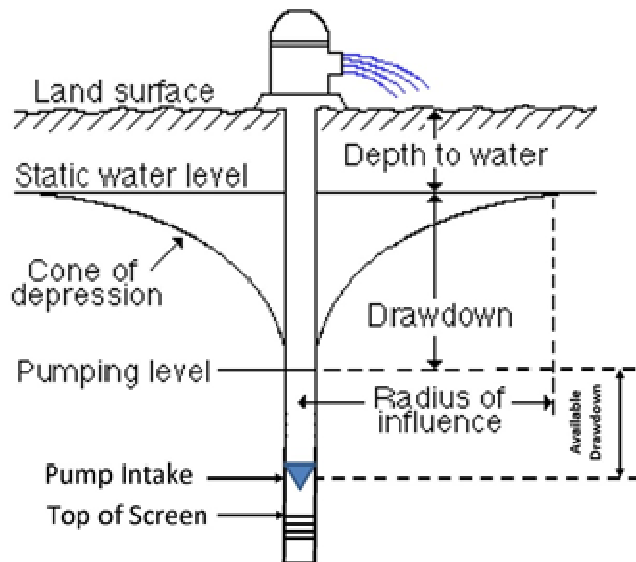
Property specific well data requested includes:

1. **Map:** show the location of domestic and irrigation wells on the property. Include property boundary lines, landmarks (e.g., roads and structures), and appropriate scale.
2. **Well Completion Logs:** provide well construction log for all operating wells on the property. Provide the total well depth and depth to the top of screen (or perforations).
3. **Pump Setting:** provide depth of pump intake below ground surface.
4. **Well Type:** identify whether the well is used for domestic purposes, irrigation, or both.
5. **Well Use:** identify the frequency that each well is used (e.g., every day year round, seasonally in the summer); this could make a difference if the impact is seasonal or intermittent.
6. **Static Water Level:** provide the measured depth below ground surface to the water level in the well under non-pumping conditions (ideally should be at least 8 hours of non-pumping) and include the date of measurement.

7. **Pumping Water Level:** provide the measured depth below ground surface to the water level in the well under pumping conditions (ideally after one hour of pumping) and include the date of measurement.

In an effort to assist landowners with acquiring the aforementioned information, please refer to this short list of information sources:

- I. Well information can be found on well installation records. If you do not have copies of these, you may wish to contact the company who drilled the well as they may have backup copies.
- II. You may wish to hire the services of a hydrologic engineer or hydrogeologist. Local organizations such as the Resource Conservation District (RCD) or Natural Resource Conservation Service (NRCS) may also be able to assist with meter and efficiency readings. The applicant is not responsible for costs incurred for obtaining this information.
- III. Many of the terms in this letter can be found in the diagram below for your convenience:



☐ Contact me for additional information

Name: _____

Property Address: _____

Phone Number(s): _____ Email: _____